Overview of Run II Strategy and Organization

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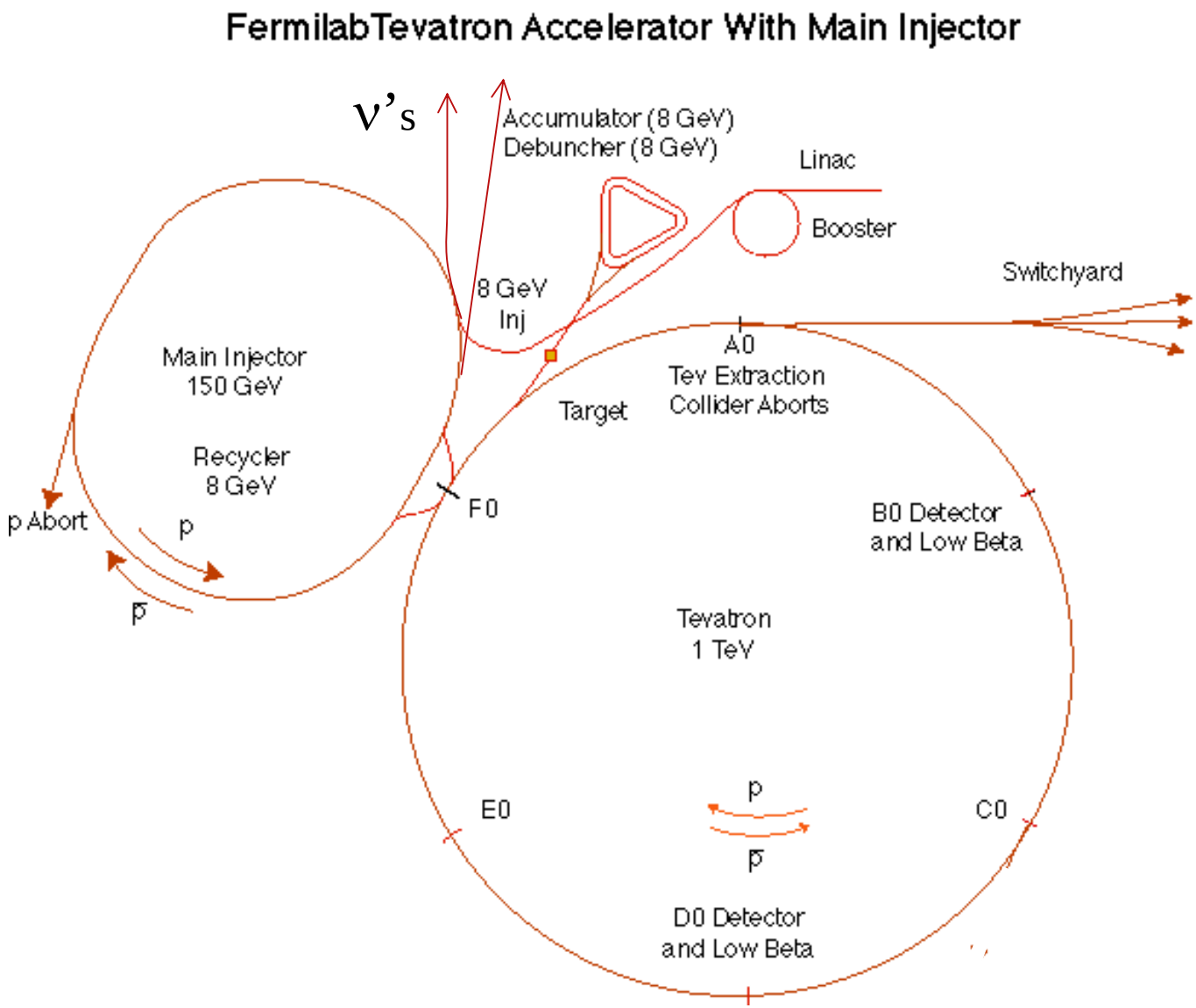
Where We're Going and How

- Highlights of the past year
- Introduction to Run II
  - Run II Upgrade Plan
  - Reliability and Maintenance Plan
  - Accelerator Operations
- Strategy for Run II
  - Beams Division Organization
  - Manpower for Run II
- Summary

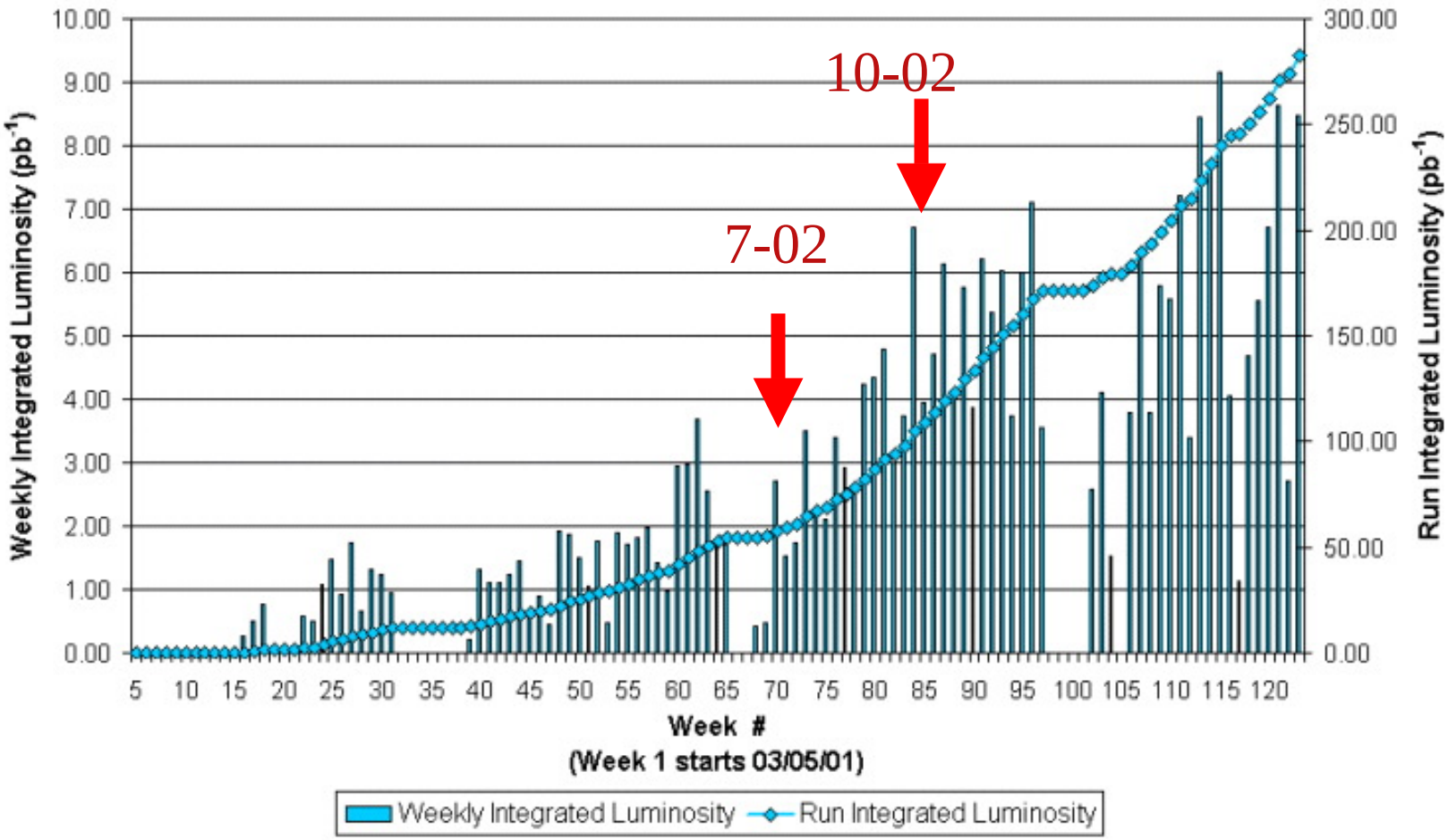
FY03 Physics Program

- Operating program
  - Run II
    - CDF
    - Dzero
  - MiniBooNE
- Commissioning
  - SY120
    - E-907
    - Test Beams
- Constructing and Installing
  - NUMI Beamline

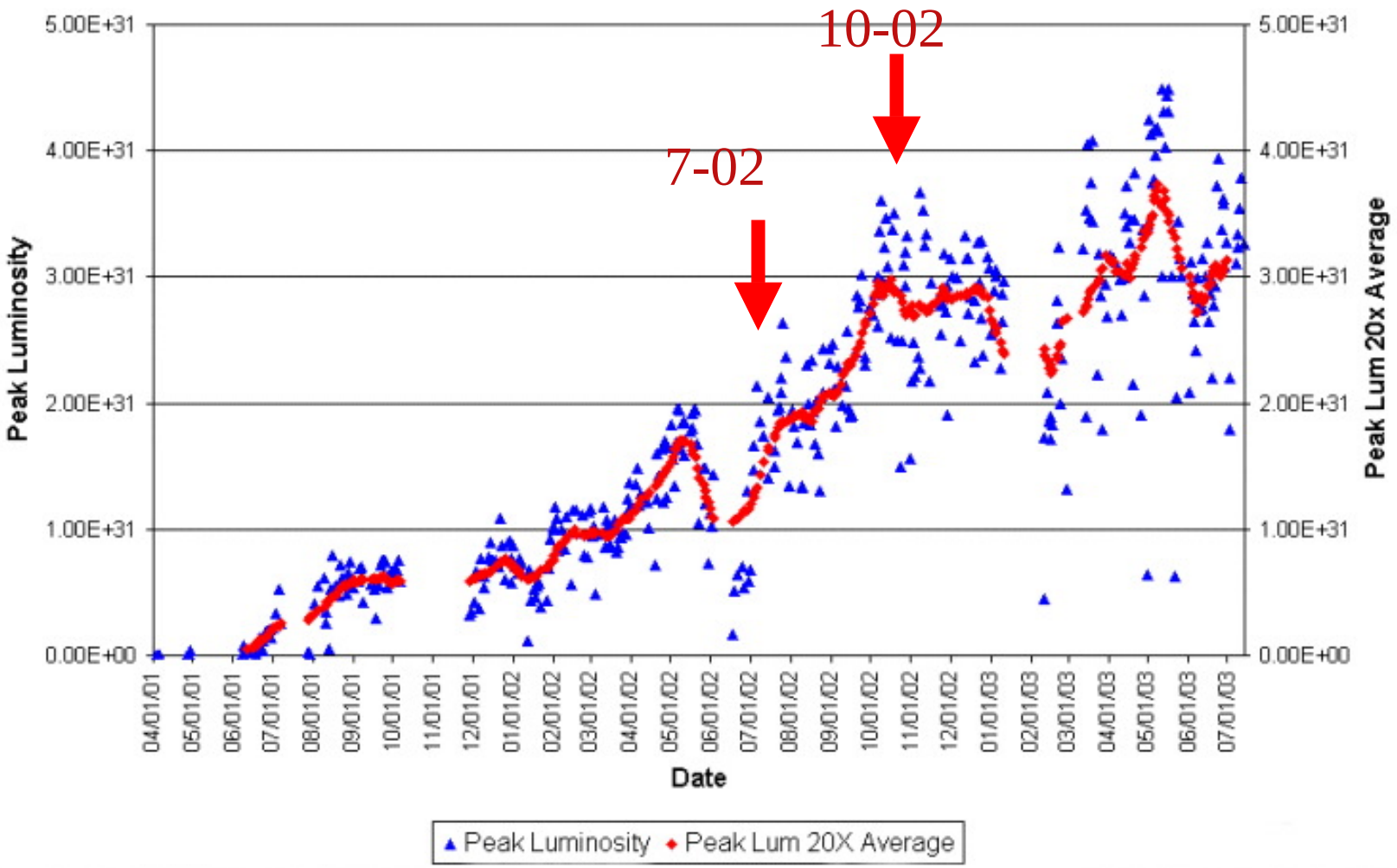
Accelerator Complex



Run II Integrated Luminosity



Peak Luminosity



Accomplishments During the Past Year

- Luminosity increases
  - Factor of 2.3 in weekly integrated luminosity
  - Factor of 2.5 in peak luminosity achieved
  - ~210 pb-1 integrated during the past year
- Improvements
  - Booster intensity
    - Identification and partial solution of dogleg problem
  - Tevatron transverse dampers
  - Removal of C0 Lambertson
    - Decreases transverse impedance in Tevatron
    - Potential to increase separation of the beams
  - Cooling improvements in the Pbar Source
  - New shot lattice in Pbar Source

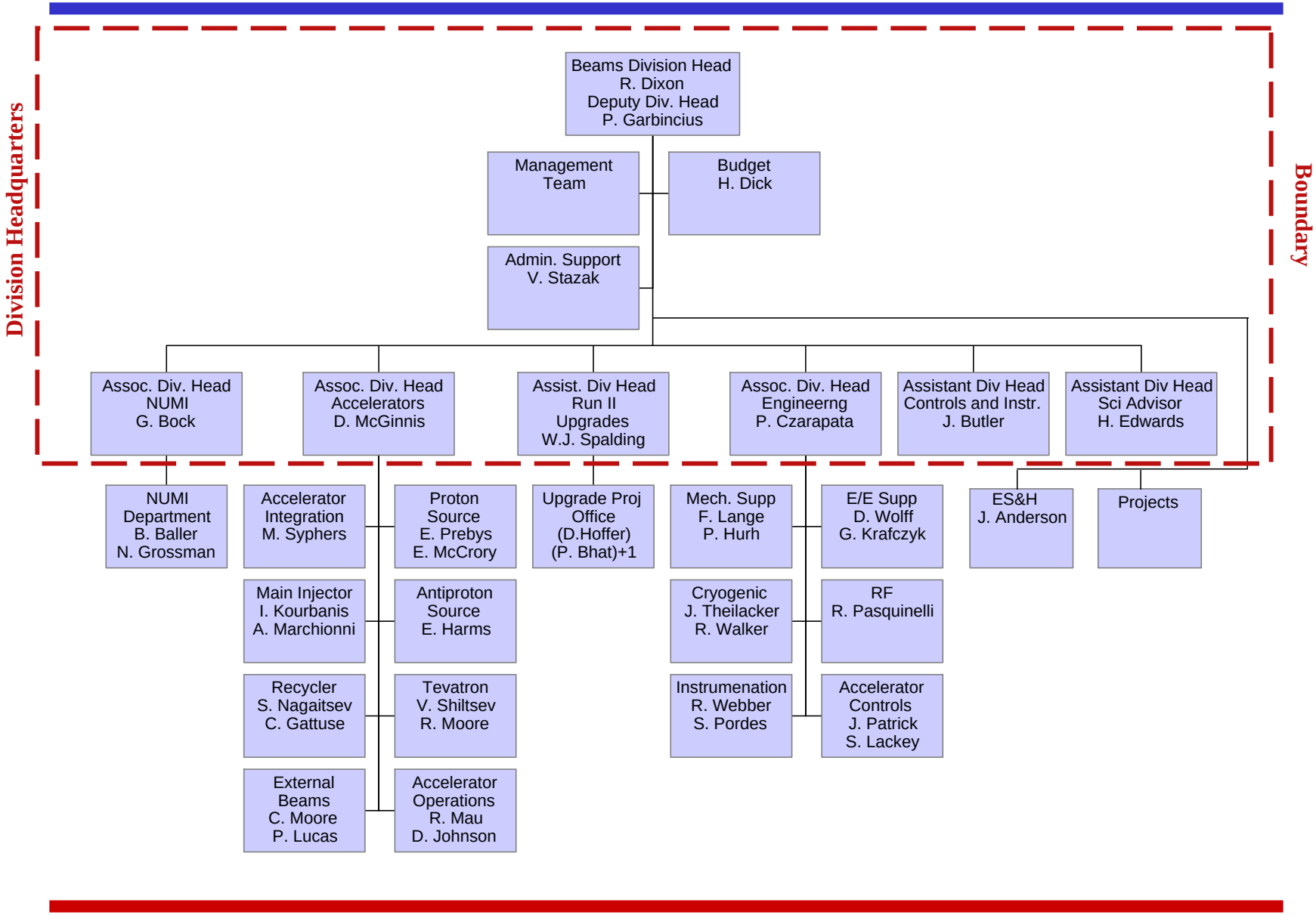
Problems Identified

- Tevatron Alignment
  - Magnet rolls
  - Smart bolt problem in Tevatron Magnets
- F0 Lambertson Impedance
- Recycler Commissioning and Vacuum problems
- Linac Power Amplifier Tubes (7835's)

Run II Overview

- Run II Operations
  - Manpower and budget comes from within the Beams Division
  - No WBS breakdown beyond level 1 in "the plan"
  - No resource loaded schedule
- Reliability/Maintenance Upgrades
  - Included in the Luminosity Upgrade Plan
  - Primarily M&S
- Luminosity Upgrades
  - Major items that require long range planning
  - WBS Structure given in the Run II Luminosity upgrade plan
  - Resource Loaded Schedule
  - Does not include short-term improvements
- Other Beams Division Activities
  - Fixed-target neutrino and other experiments
  - Accelerator R&D

Beams Division Organization



Organizational Changes

- More analysis, integration, and management of the "complex"
  - Integration Department
    - Beam Physics
    - SDA
  - Associate Head for Accelerators
    - Line responsibility for systems departments
    - Line responsibility for Operations
  - Headquarters management team
- More Focus on Recycler
  - Recycler Department
  - Increasing effort
- More Focus Electron Cooling
  - Integrate with Recycler Department
  - Increasing effort

Roles and Responsibilities

- Division Head
  - Responsible for operations, improvements, and upgrades for all activities in the Division. Also responsible for planning, budgets, and personnel
- Deputy Division Head
  - Delegated from role of the Division Head
- Assoc. Division Head for Accelerators
  - Is responsible for the operations and improvements of the accelerator complex. Has line management responsibility for the systems departments, the Integration Department, and the Operations Department.
- Assoc. Division Head for Engineering
  - Responsible for engineering and technical support in the Division. Has line responsibility for the 6 support departments. Also has responsibility for maintenance of the accelerator complex

Roles and Responsibilities (Con't.)

- Associate Division Head for NUMI
  - Project Manager for the NUMI Project (which reports to the Director). Line manager of the NUMI Department within the Beams Division
- Assistant Division Head for Run II Upgrade
  - Project Manager for the Run II Upgrade Plan. Coordinates the effort both within and outside of the Division to accomplish the project. Maintains the Resource Loaded Schedule and reports to the Division Head and above on the progress of the project
- Assistant Division Head for Controls and Instrumentation
  - Reviews and assess controls and instrumentation improvement plans. In addition, will organize and provide oversight to the efforts to implement the plans
- Assistant Division Head-- Scientific Advisor
  - Provide guidance to the Division Head and take on special assignments as needed

Headquarters Management Team

- Membership
  - Division Head-- R. Dixon
  - Deputy Division Head-- P. Garbincius
  - Associate Head for Accelerators-- D. McGinnis
  - Associate Head for Engineering-- P. Czarapata
  - Associate Head for NUMI-- G. Bock
  - Assistant Head for the Run II Upgrade-- J. Spalding
  - Assistant Head for Instrumentation and Controls-- J. Butler
  - Scientific Advisor-- H. Edwards
- Meeting weekly to discuss management issues
- Advisory to Division Head
- Some members have line responsibility in the Division
- Some members have project responsibility
  - Projects cut across systems and support department lines
- Experienced team
  - 4 former Division Heads
  - 2 Renowned Accelerator Experts
  - Extensive project management experience

Summary of Changes During Past Year

- Division Office
  - New Beams Division Head
  - New Deputy Division Head
  - New position and new Associate Head for Accelerators
  - New position and new Assistant Head for Upgrade
  - New position and new Assistant Head for Instrumentation and Controls
  - New position and new Assistant Head acting as Scientific Advisor
  - Created Management Team concept
- Departmental Changes
  - 2 new departments
    - Integration Department
    - Recycler Department
  - 4 new department heads
    - Proton Source
    - Main Injector
    - Antiproton Source
    - Recycler

Transfers into Division During Past Year

1	**Andrews, Richard**	**NuMI**	**Engineer**	**TD**
2	**Bonifas, Deborah L.**	**Mech Support**	**Technician**	**PPD**
3	**Dixon, Roger**	**Headquarters**	**Scientist**	**PPD**
4	**Drennan, Craig**	**Proton Source**	**Engineer**	**PPD**
5	**Makeev, Valeri**	**NuMI**	**Guest Sci**	**PPD**
6	**Morrison, Stephen**	**E/E Support**	**Technician**	**PPD**
7	**Rivetta, Claudio**	**Tevatron**	**Engineer**	**PPD**
8	**Schram, Henry**	**Mech Support**	**Sr. Tech Aide**	**PPD**
9	**Sheahan, Patrick**	**Antiproton Source**	**Engineer**	**PPD**
10	**Spalding, William J.**	**Headquarters Staff**	**Scientist**	**PPD**
11	**Sylejmani, Sali**	**Mech Support**	**Sr. Tech Aide**	**PPD**
12	**Waldrop, Terry L.**	**Mech Support**	**Technician**	**PPD**

Distribution of Beams Division Personnel

▪ Accelerator Operations & Maintenance	356
▪ Run II Improvements (including upgrades)	113
▪ Other Programs	95
▪ Total	564

Model based on Laboratory WPAS and Beams Division Survey

Beams Division Support from Technical Division

- Total FTE's = 42.5
  - Electron Cooling
  - Recycler diagnostics (flying wires)
  - Tev separators
  - Tev Ion Profile Monitor
  - Tevatron Electron Lens
  - AP2 Debuncher Aperture
  - Tev Smart Bolt study
  - Tune Drift Studies
  - Dipole Roll Study
  - Tev RF Structures
  - Magnet shielding for the recycler
  - Orbump dipole Magnets
  - Booster Pulsed Septum

Beams Division Support from Computing Divsion

- Total FTE's = 12
  - Applications:
  - Application for Tevatron Studies (java)
  - Booster Monitor Application (java)
  - SDA applications and web interface (java)
  - Recycler BPM calibration application (in progress)
  - Tev BPM applications (in progress)Analysis:
  - SDA analyses (many)
  - MI SBD analysis
  - Tev emittance analysis
  - BD Document Database
  - Tevatron Tune Meter (in progress)
  - Tevatron BLT algorithms
  - Recycler BPM electronics
  - Recycler flying wire
  - labview softwareTev
  - IPM test stand
  - Tev BPM electronics and software (in progress)
  - Support: Labview
  - support VXworks support
  - Technical reviews

Beams Division Support from Particle Physics Division

- Total FTE's = 45.25

SDA
Magnet Slope monitor
Beam Loss monitors upgrades / Instrument upgrades
Digital Damper/ TeV Phase monitor/ Magnet Slope monitor/
Recycler Ring BPM cabling
Recycler BPMs
BPM specification, BPM software

RR Flying Wires..
MI Dampers
TeV BPM analysis
Synch Light
Beam losses & AGM
TeV Ion profile monitor
Ion Profile Monitor
HQ Instr. Co-ordinator
General Instr Help.
TeV Magnet Alignment

External Collaborations

- Collaborations outside of the Laboratory
  - **BNL**
    - **Power Tubes and Tevatron help**
  - **CERN**
    - **help with Tevatron**
  - **LBNL**
    - **beam lifetime simulations**
    - **Debuncher injection**
    - **Tevatron dampers**
    - **Future interest in recycler**
  - **SLAC**
    - **recycler BPMs**
    - **beam lifetime simulations at 150 GeV**
  - **ANL**
    - **Tev optics**
    - **Booster**
    - **Recycler vacuum**
    - **Future interest in electron cooling**
  - **IHEP**
    - **Beam-Beam Compensation**
  - **BINP**
    - **Alignment**

Distribution of Beams Division Personnel

Accelerator Operations & Maintenance	356
Run II Improvements (including upgrades)	113
Other Programs	95
Other Divisions	100
Other Laboratories	?
Total	≥ 664

Model based on Laboratory WPAS and Beams Division Survey

Manpower Issues

- Upgrade Plan Peaks at 140 w/contingency
- Availability of Accelerator Specialists
  - Need 8 for Tevatron, Recycler, and Electron Cooling
    - 3 identified as visitors
    - 1 postdoc offer out
    - Asking for openings for 1 engineer position, 1 accelerator physicist and 2 postdocs
      - It may be possible to fill engineer and accelerator physicist position with visitors
  - Also recruiting people from within the Laboratory who can help with instrumentation

Task Forces

- Organizes Effort across departments and across Divisions and laboratories
- Organized by Division Office
- Examples
  - Stacking and cooling task force
  - Tevatron task force
  - Tevatron alignment task force
  - Tevatron BPM's task force

Strategy for Run II

- To optimize the integrated luminosity in the pre-LHC era we must continue to interleave operations with upgrades and improvements until the upgrades are complete
- To accomplish this Beams Division must make more and better use of effort from outside the Division
- The Beams Division will have to continue to find people with specialized expertise to carry out our technical projects

Summary

- During the past year we have
  - Continued to improve our luminosity performance
  - Developed an upgrade plan to maximize integrated luminosity in the pre LHC era
  - Integrated this plan into the overall plan for the Beams Division
  - Organized the Division to better attack the remaining problems of upgrading, operating, and using outside effort